IN THE CLAIMS:

The following listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

- 1. (cancelled)
- 2. (currently amended) A The system of claim 1, wherein for operating a power amplifier in a mobile handset, comprising:
 - a carrier amplifier having a carrier input terminal and a carrier output terminal;

 a peak amplifier having a peak input terminal, a peak output terminal and a control

 terminal for receiving a voltage control signal, the peak amplifier configured
 to vary at least one characteristic of the power amplifier based upon the
 voltage control signal;
 - an active phase shifter, coupled to the carrier input terminal and the peak input

 terminal, for generating a peak amplifier input signal delayed in phase from a

 carrier amplifier input signal, the active phase shifter further comprising

 comprises:
 - a lower differential unit, coupled to an input stage and the peak input terminal, for generating the peak amplifier input signal[[;]],
 - an upper differential unit, coupled to the input stage and the carrier input terminal, for generating the carrier amplifier input signal[[;]], and a phase control unit, coupled to the input stage and the upper differential unit, for tuning a phase difference between the peak amplifier input signal and the carrier amplifier input signal within a phase tolerance; and an output matching unit, coupled to the carrier output terminal and the peak output
 - terminal, for receiving a carrier output power signal and a peak output power signal and forming a power amplifier output power signal at a power amplifier output stage.
- 3. (original) The system of claim 2, wherein the lower differential unit comprises a first active component.
- 4. (original) The system of claim 3, wherein the first active component is a common-emitter bipolar transistor.

- 5. (original) The system of claim 3, wherein the first active component is a common-source field effect transistor.
- 6. (original) The system of claim 2, wherein the upper differential unit comprises a second active component.
- 7. (original) The system of claim 6, wherein the second active component is a common-base bipolar transistor.
- 8. (original) The system of claim 6, wherein the second active component is a common-gate field effect transistor.
- 9. (original) The system of claim 2, wherein the phase control unit is an Inductor-Capacitor (LC) circuit.
- 10. (currently amended) The system of claim [[1]] 2, wherein the active phase shifter, the carrier amplifier, the peak amplifier, and the output matching unit are integrated on a semiconductor die.
- 11. (currently amended) The system of claim [[1]] 2, wherein the active phase shifter is realized on a first semiconductor die, and the carrier amplifier, the peak amplifier, and the output matching unit are integrated on a second semiconductor die.
- 12. (original) The system of claim 2, wherein the phase control unit is realized on a first semiconductor die, and the upper differential unit, the lower differential unit, the peak amplifier, the carrier amplifier, and the output matching unit are integrated on a second semiconductor die.

- 13. (currently amended) The system of claim [[1]] 2, wherein the output matching unit further comprises:
 - a first transformer having a first input coupled to the carrier output terminal and a first output coupled to the peak output terminal; and
 - a second transformer having a second input coupled to the output of the first transformer and a second output coupled to the power amplifier output stage.
- 14. (currently amended) The system of claim [[1]] 2, wherein the output matching unit is implemented with lumped elements.
- 15. (currently amended) The system of claim [[1]] 2, wherein the at least one characteristic of the power amplifier is linearity.
- 16. (currently amended) The system of claim [[1]] 2, further comprising a baseband modem chipset for receiving signals transmitted by a remote base station and generating the voltage control signal in a first voltage state if power levels of the received signals indicate that the power amplifier operates within a low power range and generating the voltage control signal in a second voltage state if the power levels of the received signals indicate that the power amplifier operates within a high power range.
- 17. (original) The system of claim 16, wherein the low power range and the high power range are separated by an output power threshold of 10-19 dBm.
- 18. (original) The system of claim 16, wherein the peak amplifier further comprises a voltage control unit configured to receive the voltage control signal and control a bias current of the peak amplifier such that the power amplifier is operated as a Doherty-type amplifier when the voltage control signal is in the first voltage state and the peak amplifier is operated as a class AB amplifier when the voltage control signal is in the second voltage state.
- 19. (currently amended) The system of claim [[1]] 2, wherein the peak amplifier input signal is shifted in phase from the carrier amplifier input signal by approximately 90 degrees.

- 20. (original) The system of claim 2, wherein the phase tolerance is 5%.
- 21. (original) A method for providing phase control in a Doherty communication amplifier, the Doherty communication amplifier including a carrier amplifier and a peak amplifier, comprising:
 - processing an input signal via an active phase shifter to generate a differential output, the differential output further comprising a first differential output signal and a second differential output signal, the first differential output signal and the second differential output signal having a phase difference; and tuning the phase difference to within a phase tolerance based upon input signal characteristics.
- 22. (original) The method of claim 21, wherein the phase difference is approximately 90 degrees.
- 23. (original) The method of claim 21, wherein the phase tolerance is 5%.
- 24. (original) The method of claim 21, wherein the input signal characteristics include input signal frequency and input signal power.
- 25. (original) The method of claim 21, wherein tuning further comprises tuning the phase difference by electrically coupling circuit elements to the Doherty communication amplifier.
- 26. (original) The method of claim 21, wherein tuning further comprises tuning the phase difference by varying a capacitive value of a phase control unit capacitor via laser trimming of the phase control unit capacitor.
- 27. (original) The method of claim 21, wherein tuning further comprises tuning the phase difference by varying a capacitive value of a phase control unit varactor.

- 28. (original) The method of claim 21, further comprising:

 receiving signals transmitted by a remote base station;

 generating a voltage control signal based upon power levels of the signals transmitted

 by the remote base station; and

 biasing the peak amplifier via the voltage control signal.
- 29. (original) The method of claim 28, wherein the generating further comprises generating the voltage control signal in a first state if the power levels of the signals transmitted by the remote base station indicate that the Doherty communication amplifier operates in a low output power range.
- 30. (original) The method of claim 29, wherein the voltage control signal in the first state biases the peak amplifier as a class B or a class C amplifier.
- 31. (original) The method of claim 28, wherein the generating further comprises generating the voltage control signal in a second state if the power levels of the signals transmitted by the remote base station indicate that the Doherty communication amplifier operates in a high output power range.
- 32. (original) The method of claim 31, wherein the voltage control signal in the second state biases the peak amplifier as a class AB amplifier.

- 33. (original) A system for providing phase control in a Doherty communication amplifier, the Doherty communication amplifier including a carrier amplifier and a peak amplifier, comprising:
 - means for processing an input signal via an active phase shifter to generate a differential output, the differential output further comprising a first differential output signal and a second differential output signal, the first differential output signal and the second differential output signal having a phase difference; and
 - means for tuning the phase difference to within a phase tolerance based upon input signal characteristics.
- 34. (original) The system of claim 33, wherein means for tuning further comprises means for electrically coupling circuit elements to the Doherty communication amplifier.
- 35. (original) The system of claim 33, further comprising
 means for receiving signals transmitted by a remote base station;
 means for generating a voltage control signal based upon power levels of the signals
 transmitted by the remote base station; and
 means for biasing the peak amplifier via the voltage control signal.
- 36. (original) The system of claim 35, wherein means for biasing further comprises means for biasing the peak amplifier as a class B or a class C amplifier.
- 37. (original) The system of claim 35, wherein means for biasing further comprises means for biasing the peak amplifier as a class AB amplifier.